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Our Energy Frontiers

Benefits for all Canadians



Canada




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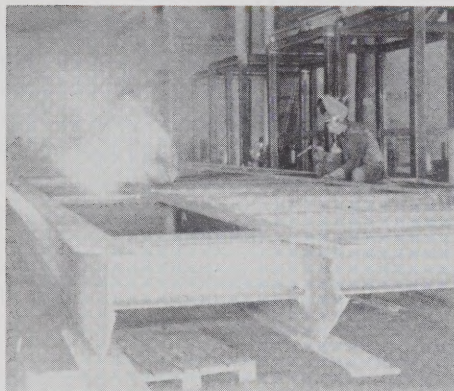
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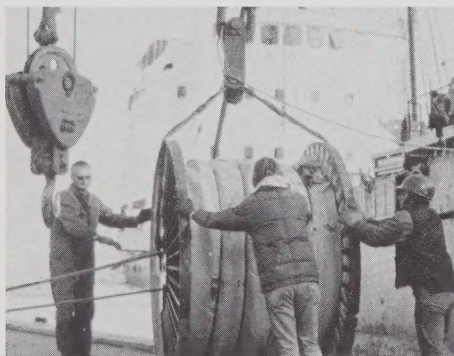
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Canada Benefits — the Challenge

With oil and gas exploration teams hard at work on Canada's energy frontiers, exciting opportunities are emerging from one end of the country to the other. The challenge is to turn these opportunities into benefits for Canada, both regionally and nationally. These benefits take many forms: jobs for Canadians, with special concern for neighbouring population groups and for indigenous groups; contracts for companies in Canada that can provide a wide variety of goods and services to drilling projects; research and development that can make Canada a world leader in certain aspects of petroleum technology; the generation of profits that stay in Canada; and petroleum exploration and development at a pace that meets Canada's energy needs.



The Canada Lands and the Canada Oil and Gas Lands Administration

The Canada Lands are made up of 6.4 million square kilometres in the Yukon, the Northwest Territories and other areas north of 60 degrees latitude, and about 3.8 million square kilometres off the east and west coasts.

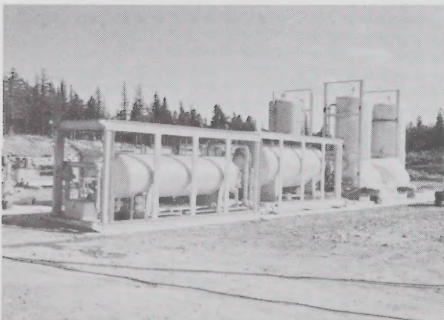
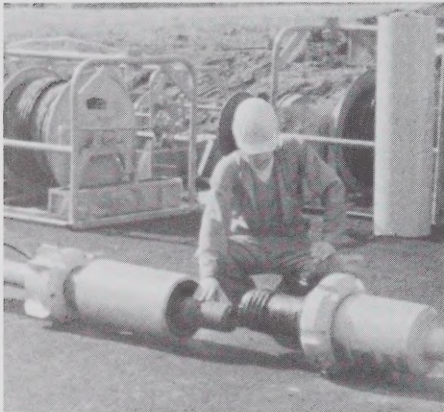
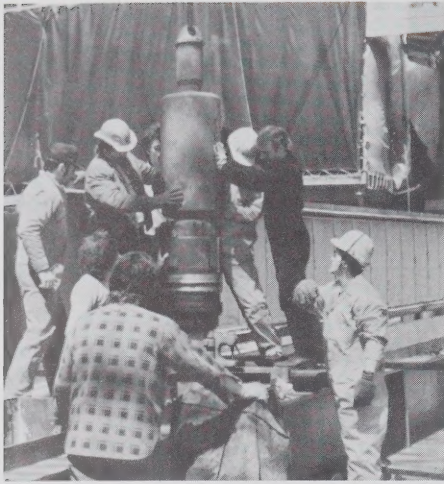
In recognition of the increasing importance of petroleum exploration in these lands, Parliament set up the Canada Oil and Gas Lands Administration (COGLA) in March 1982, to regulate the broader aspects of petroleum activity. This authority includes negotiating exploration agreements with petroleum companies; ensuring that Canadians are given a full and fair opportunity to compete in the supply of goods and services to exploration projects; and requiring that companies have in place appropriate means to ensure the safety of personnel working on the drilling operations and to safeguard the environment.

The first well in the Canada Lands was spudded at Norman Wells in 1919. No one could know that 60 years later the search for oil and gas would have moved into the inhospitable, but highly exciting,

Welders construct a rig to be used for exploration in the Beaufort Sea.
Photo: Nabors Drilling.

Construction activity at a base camp at Melville Island. These camps are used to facilitate transportation of workers and supplies to offshore drill sites. *Photo: Panarctic Oils Ltd.*

Unloading equipment and supplies in the Arctic — more "spin-off" employment from oil and gas exploration in the Canada Lands. *Photo: Panarctic Oils Ltd.*



areas of the Beaufort Sea, the Arctic Islands and the eastern offshore. This search has yielded impressive results. First, a major oil discovery at Hibernia, off the coast of Newfoundland, in the late 1970s. Then shortly afterwards, a natural gas discovery at Venture, near Sable Island, off the coast of Nova Scotia. Important as these finds are, they are only a start. It has been estimated that 4.1 billion cubic metres of oil and 7.6 trillion cubic metres of natural gas may lie waiting in the Canada Lands. Today's task is to find out if these amounts actually exist and if they can be brought to market at a reasonable price.

Oil and gas exploration work in the Canada Lands is an extremely expensive and complex undertaking. A typical well in the eastern offshore reaches 4000 to 5000 metres below the seabed, takes five to six months to drill, and costs an average of \$50 million. In the Beaufort Sea, the cost can be much higher because cold weather, rough seas, and ice formation and movement severely limit the drilling season.

What needs to be done? First, further drilling is needed on many of the existing discoveries to determine their extent. Second, promising areas must be explored to determine whether they hold oil and gas and how much. This

means massive levels of investment by the oil and gas industry, a cash injection that will be felt throughout Canada's economy. COGLA has estimated that exploration expenditures between 1983 and 1986 alone could total nearly \$8.2 billion. This does not include spending to develop further the Hibernia, Venture and subsequent discoveries.

Canada Benefits — the Opportunities

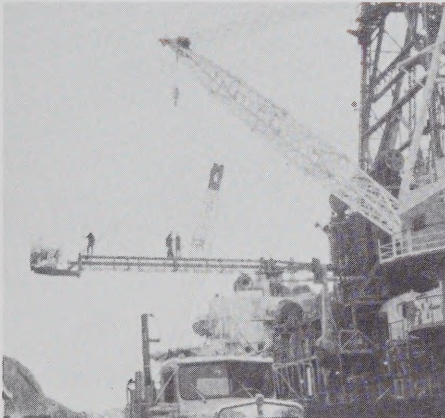
The \$8.2 billion estimate for exploration activity prepared by COGLA after consultation with the oil and gas industry shows a broad range of employment and business opportunities for Canadians:

- \$4.7 billion to operate drill rigs, drill ships and the necessary supply vessels;
- \$1.4 billion for technical, engineering, scientific and environmental services;
- \$1.1 billion for drilling and wellhead equipment, pipe, drilling fluids and fuels;
- \$1 billion for support centres, air and barge transport, supervision and communications;
- over 6900 jobs in 1983;
- nearly 8600 jobs in 1984;
- over 10 000 jobs during peak activity in 1985.

Learning the tricks of the trade during a special training course aboard the drillship *Petrel* near St. John's, Newfoundland. Photo: Petroleum Industry Training Service.

Special equipment must be manufactured for testing wells in the East Coast offshore. Photo: Otis Engineering.

Manufacture of one separator-storage unit generates as many as 250 jobs. Photo: Otis Engineering.



It is anticipated that nearly 55 per cent of the investment will be injected directly into the Canadian economy and that, on average, over 93 per cent of the jobs will be filled by Canadians, 53 per cent of those by residents of the regions in which the activity takes place.

In addition, it is estimated that as much as \$10 to \$13 billion will be invested to develop the Hibernia and Venture discoveries — adding substantially to the potential for jobs and economic opportunities for Canadians.



The Petroleum Incentives Program is a major stimulus to oil and gas exploration, and to expanded Canadian participation in that activity. This Government of Canada initiative encourages Canadian-owned and controlled exploration and development. The Program provides cash incentives to share the cost of exploration and development in the Canada Lands — and in the provinces. In its first year of operation, the Program provided approximately \$1.8 billion in incentives, a major stimulus to oil and gas exploration and development.



There is evidence of direct and vigorous participation by Canadian companies in petroleum exploration. Home Oil is directly involved in Esso Resources' drilling program in the Beaufort Sea; Husky Oil and Bow Valley Industries Ltd. are engaged in exploration activity in the eastern offshore, and will play a major role in the development of any new discoveries; Canterra Energy is expanding its Davis Strait drilling program to include areas offshore Labrador-Newfoundland; Dome Petroleum is pursuing exploration efforts in the Beaufort Sea and the eastern offshore; Petro-Canada is operating in both the eastern offshore and the Mackenzie Valley; and Panarctic is continuing its search for oil and gas in the Arctic Islands.

Workers install Canadian-manufactured equipment on board a drillship.
Photo: Otis Engineering.

Class is in session for aspiring oil and gas explorers at the Petroleum Industry Training Service in Calgary. *Photo: Petroleum Industry Training Service.*

Testing oil spill containment equipment in the Beaufort Sea.



North of 60, South of 60

The industry and the Government of Canada are working to ensure that the search for oil and gas also brings job opportunities for Canadians, opportunities for Canadian firms to supply support goods and services and socio-economic advantages to communities affected by resource development.

COGLA is responsible to the Minister of Indian Affairs and Northern Development to ensure that Exploration Agreements and Canada Benefits Plans associated with oil and gas activity north of the 60th parallel meet the following federal government objectives:

- fair distribution of socio-economic benefits to Northerners;
- adequate job opportunities for Northerners;
- stringent measures to ensure environmental protection.

An important principle inherent in these objectives is that the approval of exploration activity not interfere with the settlement of native land claims.

Companies are expected to indicate possible local and regional benefits in the areas of employment, training and business opportunities. Area residents must be consulted and kept aware of activities. Steps must be taken to avoid problems and strains in such areas as housing, social services and local lifestyle.

Exploration Agreements and Canada Benefits Plans for work in Canada's east and west coast offshore areas (generally south of the 60th parallel) require the approval of the Minister of Energy, Mines and Resources. Work off the west coast was placed under a moratorium in 1971 for environmental reasons.

Industrial Benefits

The industrial benefits section of a Canada Benefits Plan is intended to ensure that Canadian firms have full and fair access to opportunities offered by exploration and development activities in the Canada Lands, including:

- the opportunity to develop new technologies to provide the special equipment and goods and services necessary for successful exploration and development in the extreme environmental conditions unique to the Canada Lands;
- the opportunity for the Canadian research and development and engineering communities to expand as they meet the challenge of oil and gas exploration and development;
- the opportunity for Canadians to benefit from the development and transfer of technical know-how;
- the opportunity for Canadian manufacturers and service companies to participate in the provision of a broad range of goods and services;
- the opportunity to expand the Canadian industrial support base as demand for Canadian goods and services increases.

By developing this industrial benefits strategy, Canada will have the potential to bring a high level of Canadian competence to future development, and to become internationally competitive in most aspects of the oil and gas industry. COGLA, with the assistance of the Office of Industrial and Regional Benefits,* assists the companies in the preparation of this portion of their benefits plans.

Employment Benefits

In the employment benefits section of a Canada Benefits Plan, oil and gas companies and COGLA (with the assistance of the Canada Employment and Immigration Commission) determine the extent to which Canadian workers are likely to participate in exploration work. Particular emphasis is given to the hiring of residents in the region where the exploration activity will take place.

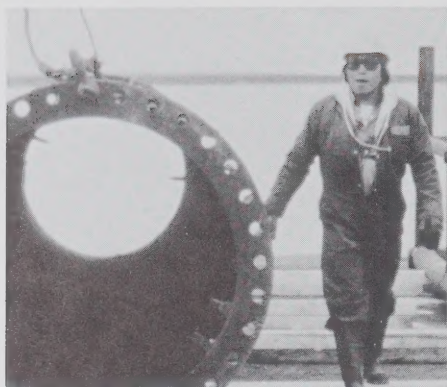
In the course of identifying employment benefits for an exploration program,

*Department of Regional Industrial Expansion

Exploration in the Canada Lands requires around-the-clock maintenance.

People and machines — essential components of any oil and gas exploration program.

Testing equipment to be used in Dome Petroleum's Beaufort Sea exploration effort.



several special concerns are taken into account:

- making maximum use of the Canadian work-force in the planning, engineering, construction and operation phases of the program;
- providing disadvantaged groups and individuals with access to employment, career training and educational opportunities;
- transferring operating knowledge and technical know-how to Canadian workers so they can play a substantial role in all aspects of exploration and development activity in the Canada Lands.

Socio-Economic Benefits

Oil and gas exploration or development projects affect nearby communities. This very important concern is addressed in the socio-economic and regional benefit sections of Canada Benefits Plans.

Companies planning to participate in oil and gas activity develop measures to help minimize the negative impact on housing, educational and social services; on local and regional land, water and resource use; and on culture and lifestyles. Among these measures are:

- appropriate public and community participation and consultation initiatives;
- commitments to maximize regional and northern employment, training, education and business opportunities;
- social and cultural research;
- socio-economic studies to identify potentially adverse effects of oil and gas exploration and development at the local, regional and national levels.

Receiving materials at a supply base at Tuktoyaktuk on the Beaufort Sea.
Offshore exploration creates onshore jobs for office and clerical workers.



Exploration Prospects in the North

Jobs: 3000 by 1985-1986
(Most to be held by Canadians, 35 per cent to be held by Northerners)

Expenditures to the Mid-Eighties:

Operating costs of major equipment such as drilling rigs and supply vessels	\$1.2 billion
Technical, engineering and contractor services	\$360 million
Drilling and wellhead equipment, pipe, drilling fluids, cement and fuels	\$310 million
Support bases and transportation, supervision and communications services	\$530 million

Exploration Prospects on the East Coast

Jobs: 5700 in 1984, increasing to 7000 in 1985 (90 per cent to be held by Canadians, 60 per cent by Atlantic Canadians)

Expenditures to the Mid-Eighties:

Leasing and operation of drilling rigs	\$3 billion
Leasing and operating supply and support vessels	\$600 million
Technical, engineering and contractor services	\$1 billion
Drilling and wellhead equipment, pipe, drilling fluids, cements and fuels	\$800 million
Support bases and transportation, supervision and communications services	\$500 million

Skilled helicopter pilots transport personnel and supplies to offshore drill sites. It's "full speed ahead" for workboats assisting in the search for oil and gas in the Beaufort Sea.



Canada Benefits — They Are Happening Now

As exploration and development activity proceeds in the Canada Lands, many organizations are working to capture benefits for Canada.

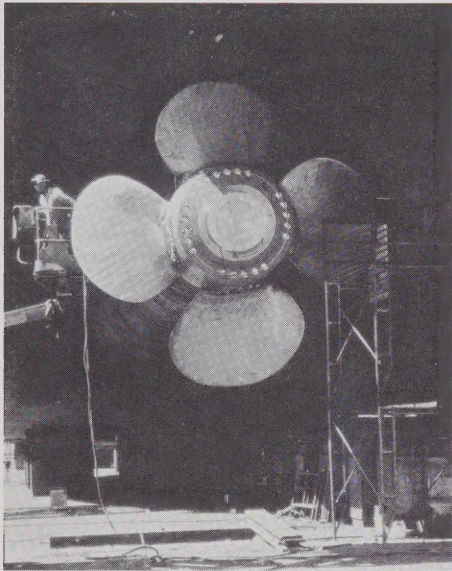
The Governments of Canada and Nova Scotia have signed an agreement committing a total of \$35 million to assist in establishing a high technology offshore support industry in Nova Scotia. As part of this agreement, the federal government has set up the Ocean Industry Development Office in Halifax. The Office engages in marketing, promotion and information activities and helps companies gain access to financial incentives and technical assistance. Firms may be eligible for capital assistance and for research and development grants.

A supplier development fund, which helps suppliers to become more effective competitors in the provision of support goods and services, has been established by Husky/Bow Valley and Petro-Canada Exploration.

Several directories of companies that are able to provide support goods and services are available. These include: the directory of the Canadian Ocean Industries Association, which lists over 255 companies; Dome Petroleum's Northern Business Directory, which lists services offered by support firms operating in the Beaufort Sea area; the Government of Nova Scotia's Ocean Industry Directory, which fully catalogues firms providing goods and services to meet the needs of exploration companies operating in the eastern offshore; and the Newfoundland and Labrador Government's Offshore Industrial Directory, which lists over 300 companies and 175 products and services. Canadian companies listed in these directories provide goods such as wire rope, winches, hoists, cranes, rigging, pipe, blowout prevention equipment, survival suits, and navigation and surveillance systems; and services including engineering, catering, transportation and communications.

Canada's shipyards benefit from exploration for oil and gas in the Canada Lands. Here, the supply vessel *Placentia Bay* is shown under construction in Vancouver.

Special vessels are needed to operate in the often harsh conditions in the northern Canada Lands. This icebreaking supply boat was built in Vancouver for use in the Beaufort Sea.



In order to ensure that Canadians have the maximum opportunity to find employment in the northern and offshore oil and gas industry, a number of recruitment and training initiatives have been taken, such as:

- Engineers are actively recruited from Canadian universities.
- Petro-Canada, Husky/Bow Valley and Canterra Resources jointly sponsor a training program for drill rig personnel. This program includes two weeks of classroom and simulator training at the Petroleum Industry Training Service in Calgary, followed by on-the-job training on both land-based and offshore rigs. For example, Canterra Resources sponsored a two-week course aboard the drill ship *Petrel* to give land-based drilling personnel offshore experience.
- Dome Petroleum, Esso and Gulf have cooperated with the Canada Employment and Immigration Commission and the Government of the Northwest Territories to establish a special vocational school in Tuktoyaktuk to provide training for welders, carpenters and electricians.

- The Canada Employment and Immigration Commission has agreed to share the cost of training programs with certain oil and gas exploration companies. Under this arrangement, Panarctic Oils, Canterra Energy, Petro-Canada and Husky/Bow Valley have implemented specific training initiatives for drilling-unit personnel.
- Many exploration companies have set up training berths on supply vessels to provide Canadians with on-board experience.
- Shell Oil has helped to establish a cottage industry in Halifax, where the handicapped are employed making sample bags for offshore drill samples.

Several initiatives have been taken to make sure oil and gas exploration programs take into account local environmental and socio-economic concerns.

- Where required, funding or administrative support has been provided for local cultural activities, and information on community liaison programs.

Worker dwarfed by propeller of an icebreaker under construction in a Canadian shipyard. Increasing levels of exploration in the Canada Lands mean work for Canadian shipbuilders and jobs for Canadian workers.



- Northern Benefits Committees are being established in each territory, to bring together federal and territorial officials directly involved in the industry's activities, to provide for coordination and to assess annual action plans.
- In the North, special measures are in place to allow the pursuit of traditional hunting, fishing and trapping activities.
- The provincial and territorial governments all provide valuable advice to COGLA on socio-economic concerns as do various federal government departments.
- On the east coast, joint industry and fishery consultative groups are being established to help ensure the protection of Canada's abundant fishery.
- Two special Environmental Studies Revolving Funds have been established through which the industry provides funding for environmental and socio-economic studies well in advance of any oil and gas development activity.
- Government and industry are working together to produce Socio-Economic Impact Statements, which are designed to identify the costs and benefits associated with future development projects at Venture and Hibernia and in the Beaufort Sea.

Through these and other efforts, Canada is working to secure the benefits that will flow from its unique energy frontier.

The icebreaker *Terry Fox*, constructed in a Vancouver drydock, is destined to play a vital role in oil and gas exploration in the Beaufort Sea.

The semi-submersible drilling rig the *Bow Drill III*, built in Saint John, New Brunswick for Husky Oil and Bow Valley Industries. These two Canadian companies are active in developing the rich Hibernia field offshore Newfoundland. Photo: Bow Valley Industries.

